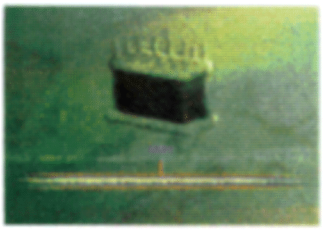

Fuel Cell Video Documentary

Program Description

In May 1999, the Office of Advanced Automotive Technologies at the Office Transportation Technologies tasked the Fuel Cell Education Project at the Laboratory to develop and produce a video documentary on fuel cells. The title of the documentary will be *Fuel Cells – The Energy Revolution.* The goal of the documentary will be to inform a general audience about the benefits of fuel cell technology and show the exciting and diverse opportunities the technology holds for the future.

The scope of the documentary will be international. Viewers will learn about the work being done in the US, Europe, and Japan. Demonstration projects such as the Chicago Transit buses, Munich airport buses and refueling station, the Desert Research Institute sustainable energy system, the Iceland project to develop a hydrogen energy economy, and the London taxi will be included. Transportation, utility and portable power applications for fuel cells will be included.

The documentary is being produced at the Laboratory. Cambridge Documentary Films (CDF) serves as primary consultant on the project. CDF has been making films about social issues for more than 20 years. Their numerous achievements include an Academy Award; their films have been presented at film festivals around the world. Through their non-profit distribution company, their films have reached thousands of students and educators, community leaders, and concerned citizens.

The documentary will make the viewing public aware of the numerous applications and benefits of fuel cell technology. It is fair to say the automobile changed the industrial and social fabric of the United States and most countries around the globe. Henry Ford epitomized "Yankee ingenuity," and the Model T helped create the open road, new horizons, abundant and inexpensive gasoline...and tailpipe exhaust. More people are driving more cars in 2001 than ever before—more than 200 million vehicles are on the road in the US alone. But the car has contributed to our air and water pollution and forced us to rely on imported oil, helping to create a significant trade imbalance. Today many people think fuel cell technology will play a pivotal role in a new technological renaissance—just as the internal combustion engine vehicle revolutionized life at the beginning of the twentieth century. Such innovation would have a global environmental and economic impact.

The primary focus of the documentary will be fuel cells for transportation. Viewers will be shown that fuel cells are not just laboratory curiosities. While there is much work that needs to be done to optimize the fuel cell system (remember, the gasoline internal combustion engine is nearly 120 years old and still being improved), hydrogen fuel cell vehicles are on the road—*now*. The film will show commuters living in Chicago who ride on fuel cell buses as well as a fuel cell motor scooter about to make its debut in Taiwan.

In addition, the documentary will show that every major automobile manufacturer in the world is developing fuel cell vehicles. The introduction of fuel cells into the transportation sector will increase fuel efficiency, decrease foreign oil dependency, and become an important strategy/technology to mitigate emissions concerns.

Viewers will also learn about additional applications for fuel cells—including utility applications such as office buildings and homes as well as portable power requirements, which could include laptop computers and cellular phones.

Performance Objectives and Milestones

During FY01, postproduction efforts began on the video. These activities began at the Laboratory, working with the Imaging Services (IM-4) Group. Editing began to select appropriate segments from interviews to be included in the video. Additional descriptive and historical footage was acquired. In December, Marcia Zalbowitz, producer/director of the video documentary, relocated to the Albany, New York area and postproduction activities were also relocated. At the suggestion of Cambridge Documentary Films, Context Media in Providence, Rhode Island, was selected to continue the postproduction work begun at the Laboratory. Work began in Rhode Island in January 2001.

Highlights of This Year's Accomplishments

100% of the interviews and filming have been completed on the documentary. The following people will be included in the video:

- Mr. H. Watanabe, Board Member, Toyota
- Dr. Alan Lloyd, President, California Air Resources Board
- Prof. Joan Ogden, Princeton University
- Paul MacCready, President, Aerovironment
- John Wallace, Ford Motor Company
- Harry Pearce, former Vice Chairman, Board, General Motors
- Chicago Transit Authority Frank Kruesi
- Chris Galvin, CEO, Motorola
- Desert Research Institute
  Glenn Rambach Student
- Bill Poldony, Retired, International Fuel Cells
- William Miller, CEO, International Fuel Cells
- Georg Burkhardt and students (Germans teacher and students)
- Jon Bjorn Skulason, Iceland New Energy Project
- Don Huberts, CEO, Shell Hydrogen
- Shimshon Gottesfeld, CTO, MTI Micro Fuel Cells
- Christine Sloane, General Motors
- Andrew Brown, Jr., Delphi Automotive
- Tom Gross, Deputy Assistant Secretary, Office of Transportation Technologies, US Department of Energy
- Graham Batchelor, President, Alternative Fuels, Texaco

The project is in "rough cut" stage. Aside from the new opening, all the elements of the program have been completed.

A draft detailed distribution plan has been prepared for the Office of Advanced Automotive Technologies. Areas included in this plan are premiere, US distribution, international distribution, study guide, and computer-based and electronic distribution.

Fuel Cell Tutorial

This work began in October 1999, when the 36 page, four-color publication, *Green Power – Fuel Cells* was published. This activity began in May 1998, when the Fuel Cell Education Project at the Laboratory received funding from the Office of Advanced Automotive Technologies (OAAT) at the Office of Transportation Technology at the US Department of Energy, to develop

of a tutorial for high school and college students on fuel cells. The 3M Foundation also supported this work through a financial contribution.

Performance Objective and Milestones

An important objective has been to make the publication available to a wide audience by

- Developing a "standalone" publication containing detailed and up-to-date information on current developments in fuel cell research and technology
- Stimulating independent inquiry by providing appropriate follow-up resources
- Creating an engaging and visually attractive brochure

Highlights of This Year's Accomplishments

The publication has gone to its 4th print; over 40,000 copies have been distributed worldwide. High school and college students from around the globe have requested copies. Thousands of copies have been requested by industry. Major automobile manufacturers, fuel cell companies, and suppliers are distributing the publication to their staff involved in the newly formed fuel cell research and development areas. The publication has been translated into Japanese, German, and Spanish.

Tutorial Based Web Site Program Description and Accomplishments

Fuel Cells - Green Power is also available on the internet at http://education.lanl.gov/resources/fuelcells in PDF format for easy and convenient downloading. The site tracks approximately 7,500 hits per month. Hyperlinks to references and resources are included in the text. E-mail comes from around the world—from students as well as businesses. Our responses provide information, references and referrals. Technical experts occasionally assist in assuring complete, accurate answers.

Graduate Automotive Technology Education Program Description and Accomplishments

Under the direction of the Office of Advanced Automotive Technologies (OAAT) at the Office of Transportation Technology, the fuel cell education program was tasked to edit and oversee the design and publication of a four-color brochure to introduce the Graduate Automotive Technology Education (GATE) program to college students throughout the country.

The GATE program was established by DOE to ensure that a trained work force will be available to continue development and commercialization of the OAAT research efforts. The goal of the GATE program is to educate a future work force of cross-disciplinary automotive engineering professionals who are knowledgeable about and experienced in developing and commercializing advanced automotive technologies in areas of

- Hybrid-electric vehicles and compact power electronics
- Advanced batteries
- Direct-injection diesel technologies
- Fuel cell and processing technologies
- Lightweight automotive materials

The brochure was designed to highlight the work currently being done in ten universities throughout the country. Each school has been designated as a GATE center through a competitive process. Information about the advanced automotive curriculum is included along with goals and objectives of each program. Biographies of the GATE students along with the GATE professor/coordinator at each school are also included.